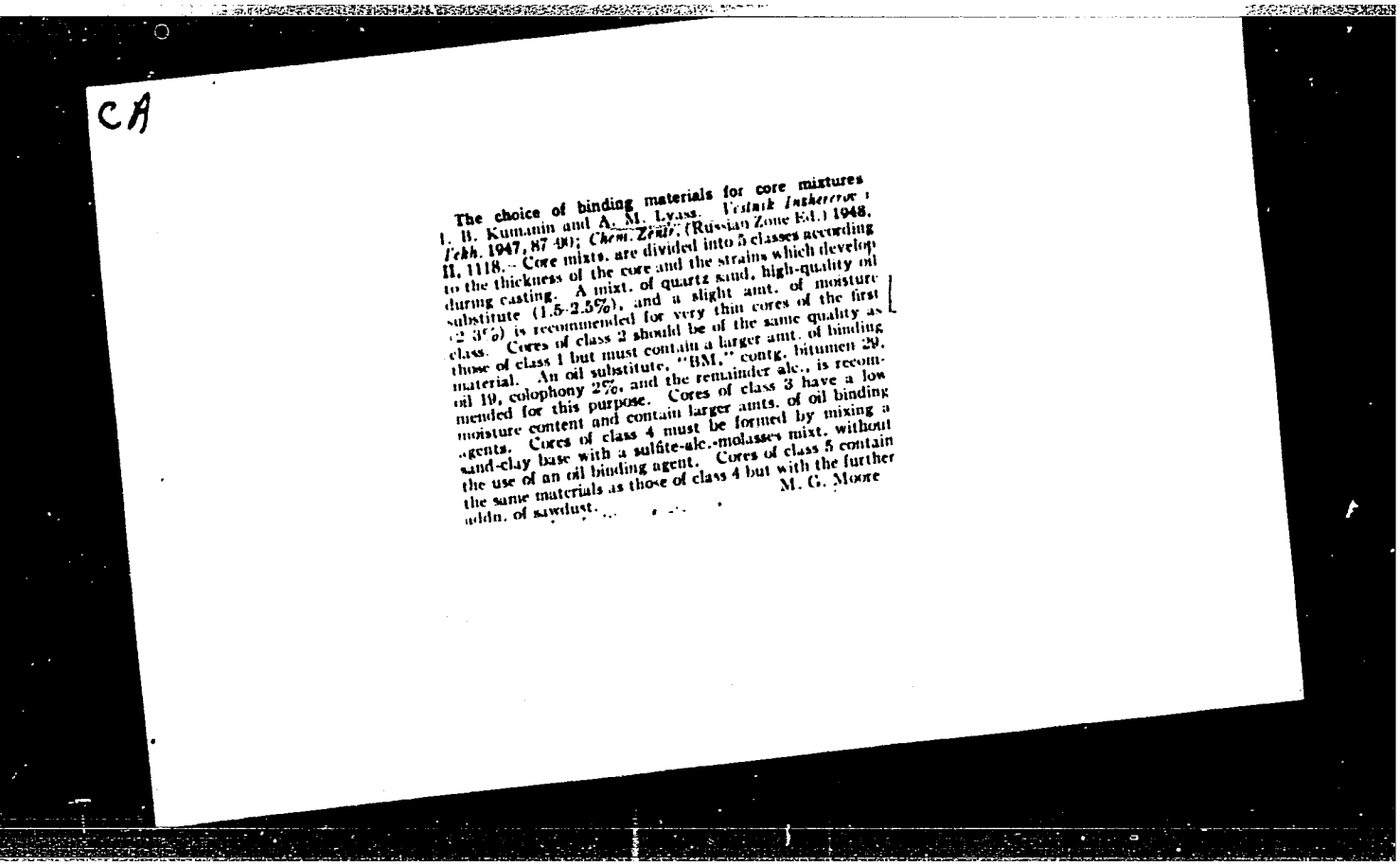


CA

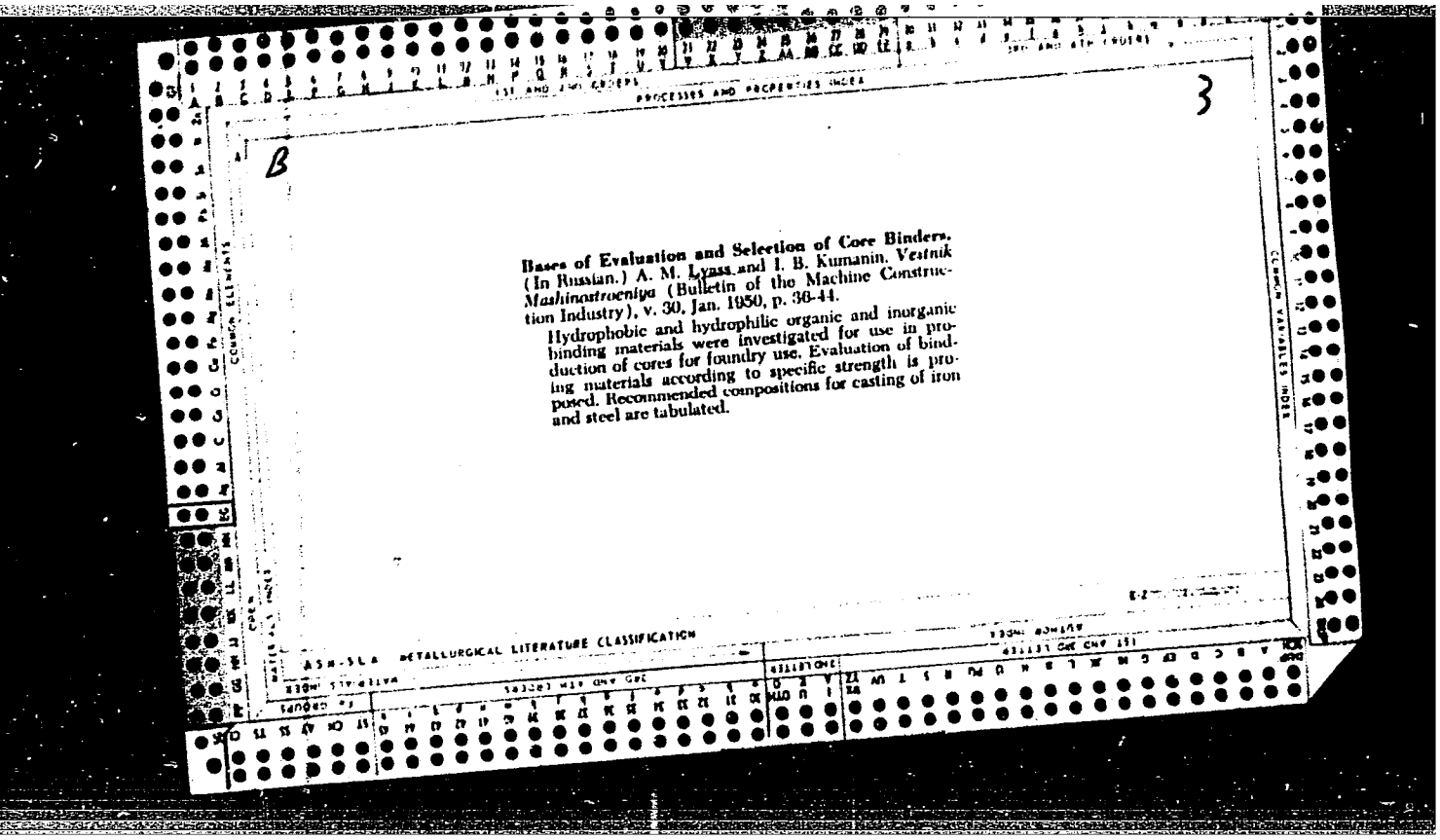
The choice of binding materials for core mixtures. I. B. Kumanin and A. M. Lyass. *Vestnik Inzhenerov i Tekh.* 1947, 87-90; *Chem. Zentr.* (Russian Zone Ed.) 1948, II, 1118.—Core mixts. are divided into 5 classes according to the thickness of the core and the strains which develop during casting. A mixt. of quartz sand, high-quality oil substitute (1.5–2.5%), and a slight amt. of moisture (2–3%) is recommended for very thin cores of the first class. Cores of class 2 should be of the same quality as those of class 1 but must contain a larger amt. of binding material. An oil substitute, "BM," contg. bitumen 29, oil 19, colophony 2%, and the remainder alc., is recommended for this purpose. Cores of class 3 have a low moisture content and contain larger amts. of oil binding agents. Cores of class 4 must be formed by mixing a sand-clay base with a sulfite-alc.-molasses mixt. without the use of an oil binding agent. Cores of class 5 contain the same materials as those of class 4 but with the further addn. of sawdust.

M. G. Moore

B.T.R. LIASS, A.M.

11666 Sviaziushchie Materialy dlia Sterzhnei. (Binding Materials for Cores) I. B. Kumanin and A. M. Liass. 272 pages. 1949 Government Publishing House for the Defense Industries, Moscow, U.S.S.R. (TS230 K96s)

Presents theoretical bases of the action of core binders and practical information on their application in foundries and casting departments. Properties and special features of individual binders used in the U.S.S.R. are discussed in detail. Methods of testing binders are described at length.



Bases of Evaluation and Selection of Core Binders. (In Russian.) A. M. Lyass and I. B. Kumanin. *Vestnik Mashinostroeniya* (Bulletin of the Machine Construction Industry), v. 30, Jan. 1950, p. 38-44.

Hydrophobic and hydrophilic organic and inorganic binding materials were investigated for use in production of cores for foundry use. Evaluation of binding materials according to specific strength is proposed. Recommended compositions for casting of iron and steel are tabulated.

LYASS, A. M.

185T44

USSR/Engineering - Foundry, Equipment Jan 51

"Quick-Drying Mixtures for Rapid Production of Cores and Molds," I. B. Kumanin, A. M. Lyass, Candidates Tech Sci, TsNIITMASh

"Litey Proiz" No 1, pp 23-25

Use of carbamido-formaldehyde resin as binder permitted elimination of vegetable oils at aluminum and magnesium foundries, accelerated process of drying cores (8-15 times) and considerably increased their strength. Discusses selection of proper catalysts. Gives compn and properties of core mixts with MF-17

185T44

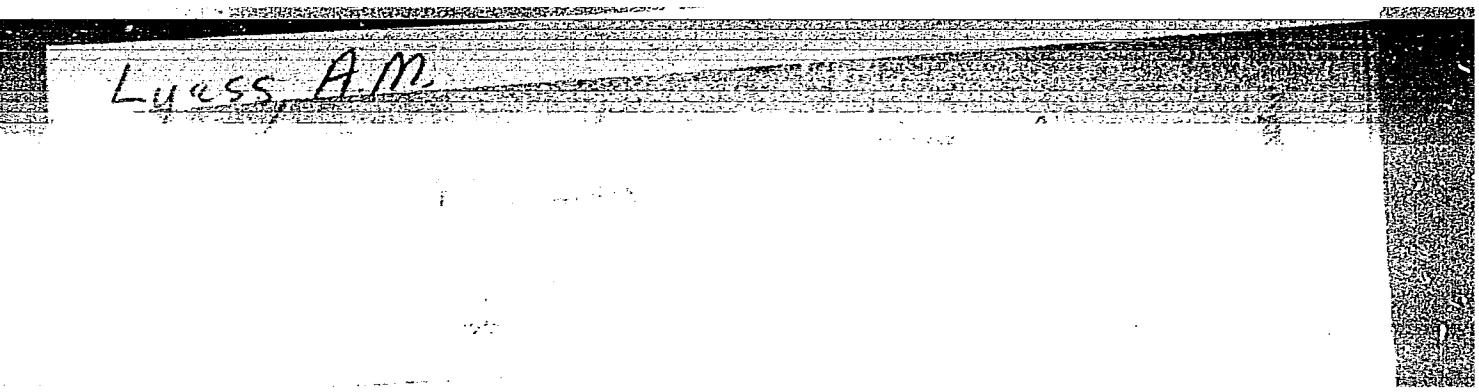
USSR/Engineering - Foundry, Equipment Jan 51 (Contd)

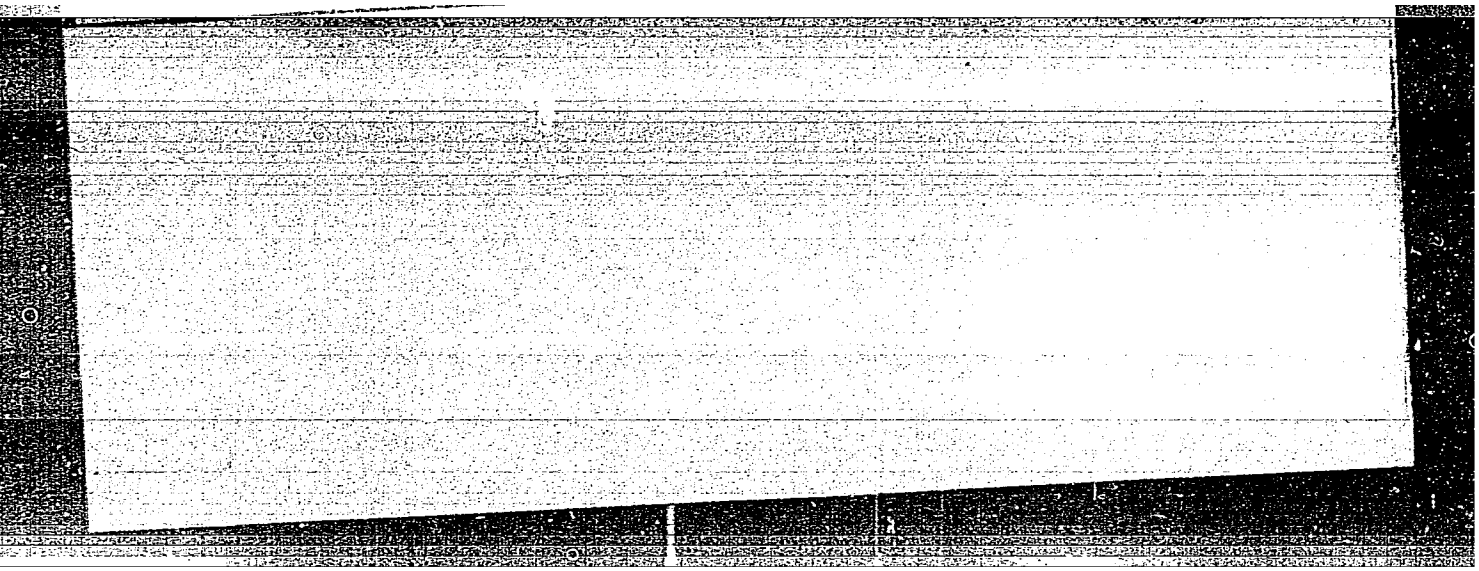
binder. Iron reinforcing rods may be eliminated from cores due to high strength of material. Schematic diagram is presented for installation, which permits combination of core-forming and drying processes.

185T44

KRYANIN, I.R.; LYASS, A.M.; YAKOVLEV, V.O.; DUBROVSKIY, A.M.

Casting blades of hydroturbines of the TSymlyansk and Gor'kiy hydroelectric power stations. Lit.proizv. no.6:2-7 Je '53. (MLRA 6:7) (Blades)





APPROVED FOR RELEASE: 08/31/2001 CIA-RDP86-00513R001031110010-3"

LYASS, A.M.

Burning-preventing molding mixtures for stainless-steel castings. I. B. Levanin, A. M. Lyass, Ye. ... Yakovlev, I. P. Sumagin, and P. ... *Liteinoe Proizvodstvo* 1954, No. 2, 5–7.—Methods are described for preventing burning of sand which did not eliminate the defect. Good results from the burning standpoint were obtained by casting 28-ton turbine blades by facing the pattern with layers 10–30 mm. thick of a mixt. composed of 100 parts of ground chrome-magnesia brick, 6 parts of Na silicate (sp. gr. 1.48), 1.5 parts of 10% NaOH soln., and 1 part water, backing it with a 40–45-mm. layer of 85–15 mixt. of sand and clay, and filling the mold with sand following usual practice. Grinding the brick coarser than 30–35-mm. mesh increases the danger of burning, while excessively fine mixts. cause blowholes.

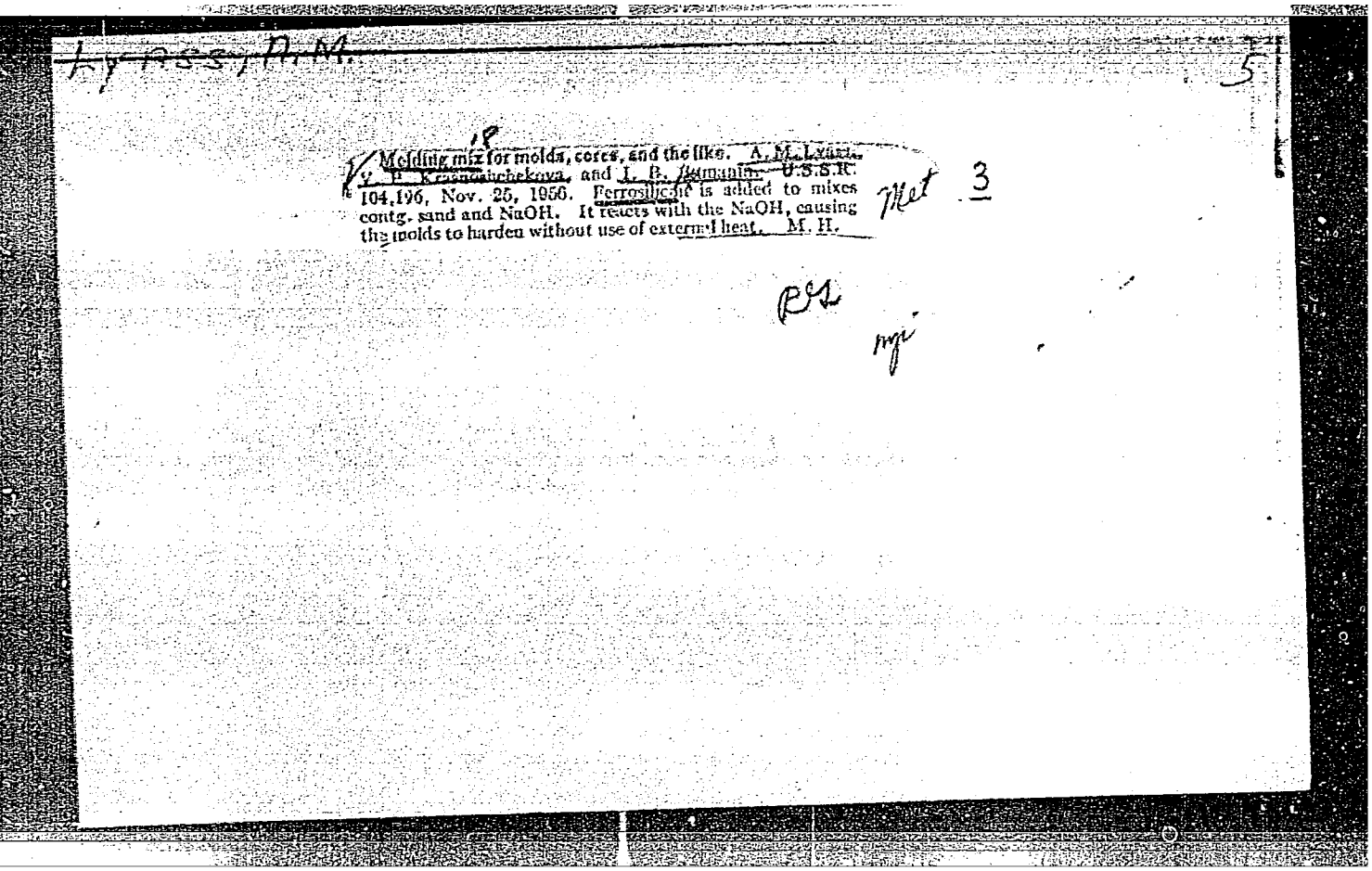
J. D. Gat

LYASS, A.M.; VILENSKAYA, I.A.; DUBROVSKIY, A.M.

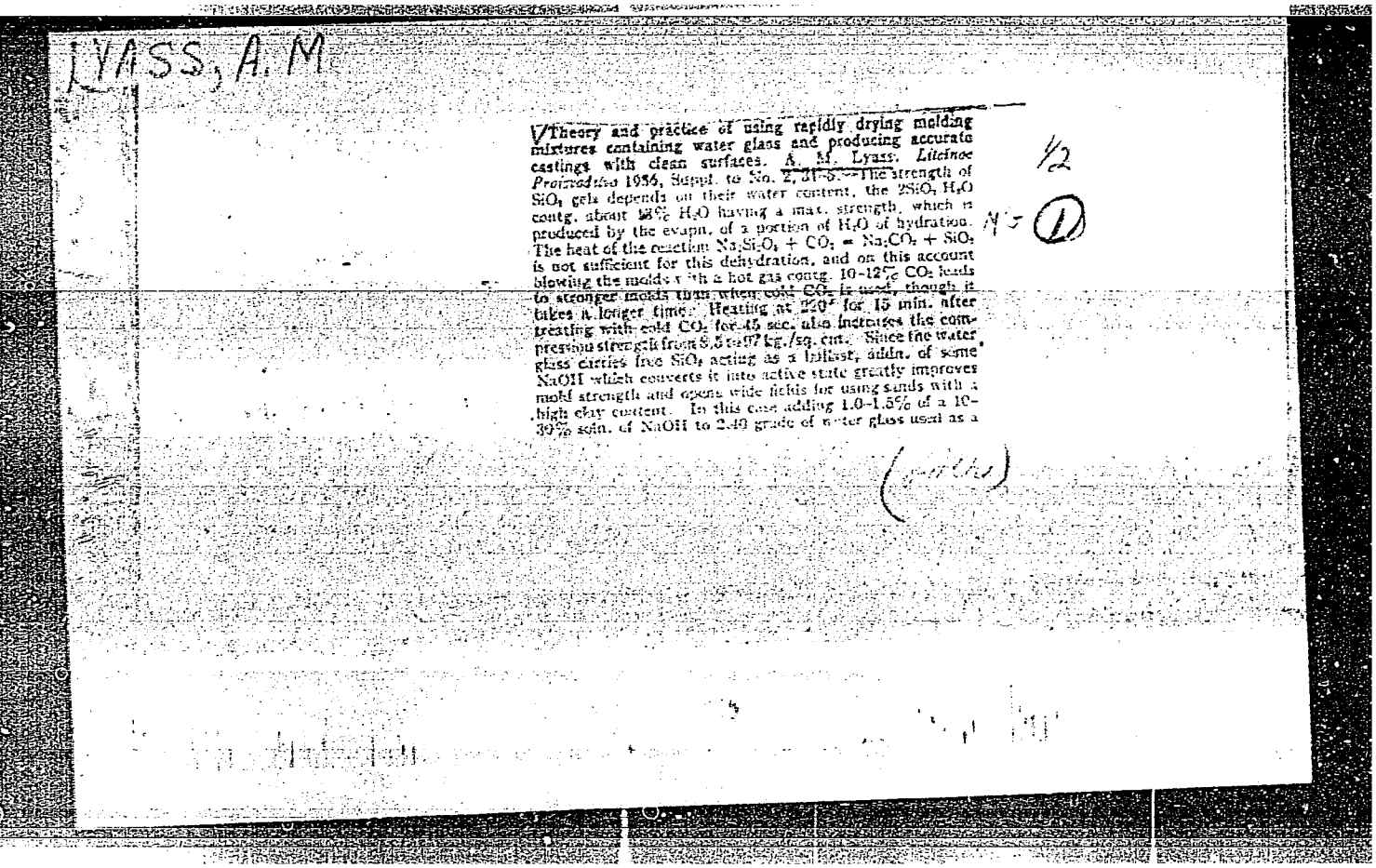
Apparatus for testing moulding materials at high temperatures. (MLRA 7:8).
Lit.proizv. no.5:13-15 Ag '54.
(Foundry supplies--Testing)

LYASS, A.M., kandidat tekhnicheskikh nauk; KRYLOV, V.I., inzhener, redaktor
MATVEYEVA, Ye.N., tekhnicheskiy redaktor.

Modern binders and fields in which they are used. Trudy TSNIITMASH no.28:3-58 '55. (MLRA 8:6)
(Binders (Chemistry)) (Coremaking) (Molding(Founding))



Molding mix for molds, cores, and the like. A. M. Lyass, V. P. Krasnoshchekova, and L. B. Izmailov. U.S.S.R. 104,196, Nov. 25, 1956. Ferrosilicate is added to mixes contg. sand and NaOH. It reacts with the NaOH, causing the molds to harden without use of external heat. M. H.



LYASS, A. M.

Theory and practice of using rapidly drying molding mixtures containing water glass and producing accurate castings with clean surfaces. A. M. Lyass. *Liteinoe Proizvodstvo* 1956, Suppl. to No. 2, 31-5.—The strength of SiO_2 gels depends on their water content, the $2SiO_2 \cdot H_2O$ contg. about 35% H_2O having a max. strength, which is produced by the evapn. of a portion of H_2O of hydration. The heat of the reaction $Na_2Si_2O_5 + CO_2 = Na_2CO_3 + 2SiO_2$ is not sufficient for this dehydration, and on this account blowing the molds with a hot gas contg. 10–12% CO_2 leads to stronger molds than when cold CO_2 is used, though it takes a longer time. Heating at 220° for 15 min. after treating with cold CO_2 for 45 sec. also increases the compressive strength from 6.5 to 17 kg./sq. cm. Since the water glass carries free SiO_2 acting as a ballast, addn. of some NaOH which converts it into active state greatly improves mold strength and opens wide fields for using sands with a high clay content. In this case adding 1.0–1.5% of a 10–30% soln. of NaOH to 2.40 grade of water glass used as a

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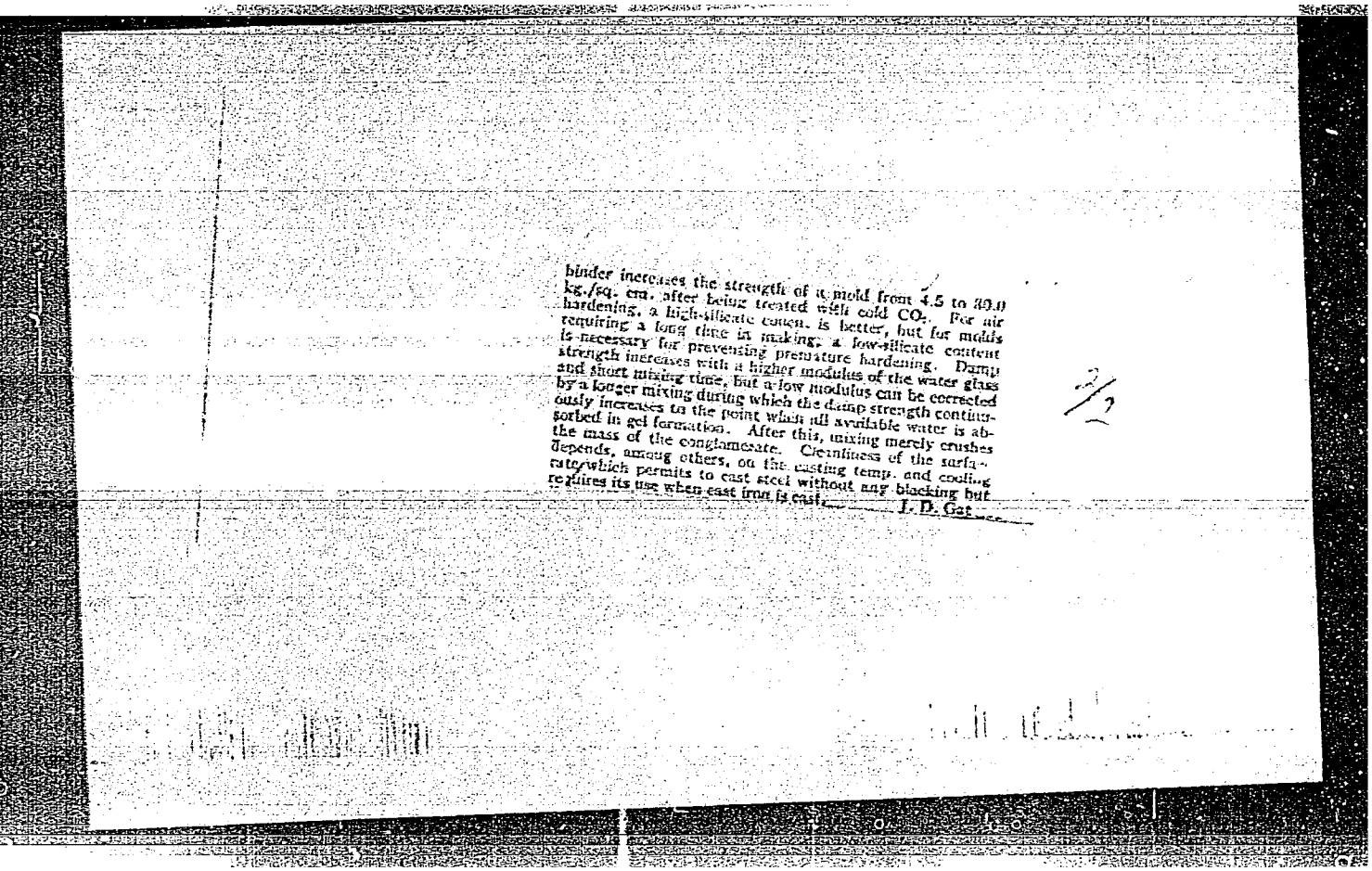

binder increases the strength of a mold from 4.5 to 49.0 kg./sq. cm. after being treated with cold CO_2. For air hardening, a high-silicate cmen. is better, but for molds requiring a long time in making, a low-silicate content is necessary for preventing premature hardening. Damp strength increases with a higher modulus of the water glass and short mixing time, but a low modulus can be corrected by a longer mixing during which the damp strength continuously increases to the point when all available water is absorbed in gel formation. After this, mixing merely crushes the mass of the conglomerate. Cleanliness of the surface, which permits to cast steel without any blacking but requires its use when cast iron is cast. J. D. Gat

FANTALOV, L.I., professor, doktor tekhnicheskikh nauk; KUMANIN, I.B., kandidat tekhnicheskikh nauk; LYASS, A.M., kandidat tekhnicheskikh nauk.

"Special types of founding." N.N. Rubtsov. Reviewed by L.I. Fantalov, I.B. Kumanin, A.M. Liass. Lit.proizv. no.5:31-32 My '56. (MLRA 9:8)

(Founding) (Rubtsov, N.N.)

LYASS, A.M.

A substitute for powdered Bakelite in shell molding. A. M. Lyass, Ya. I. Medvedev, and L. D. Smilova. Lit. Proizvodstvo 1956, No. 8, 10-12. — A mixt. of 3-5% of wood-tar, m. 180°, and sand hardens in 400 sec. at 450° and in 80 sec. when 10% urotropine are added to it, though the shells produced have only 3.2-8.6 kg./sq.cm. compression strength. Mixing a resin formed by condensation of PhOH with HCHO in the presence of HCl with this tar and urotropine in the proportion of 3.5:3.5:1.05 and with 100 parts of sand yielded shells with compression strengths of 24.3-25.9 kg./sq.cm. The results are further improved by adding to this mixt. 1.5% acetone. The compression strength increases to about 38 kg./sq.cm. owing to the soln. of the tar which then envelops grains of sand.

L. D. Gal—

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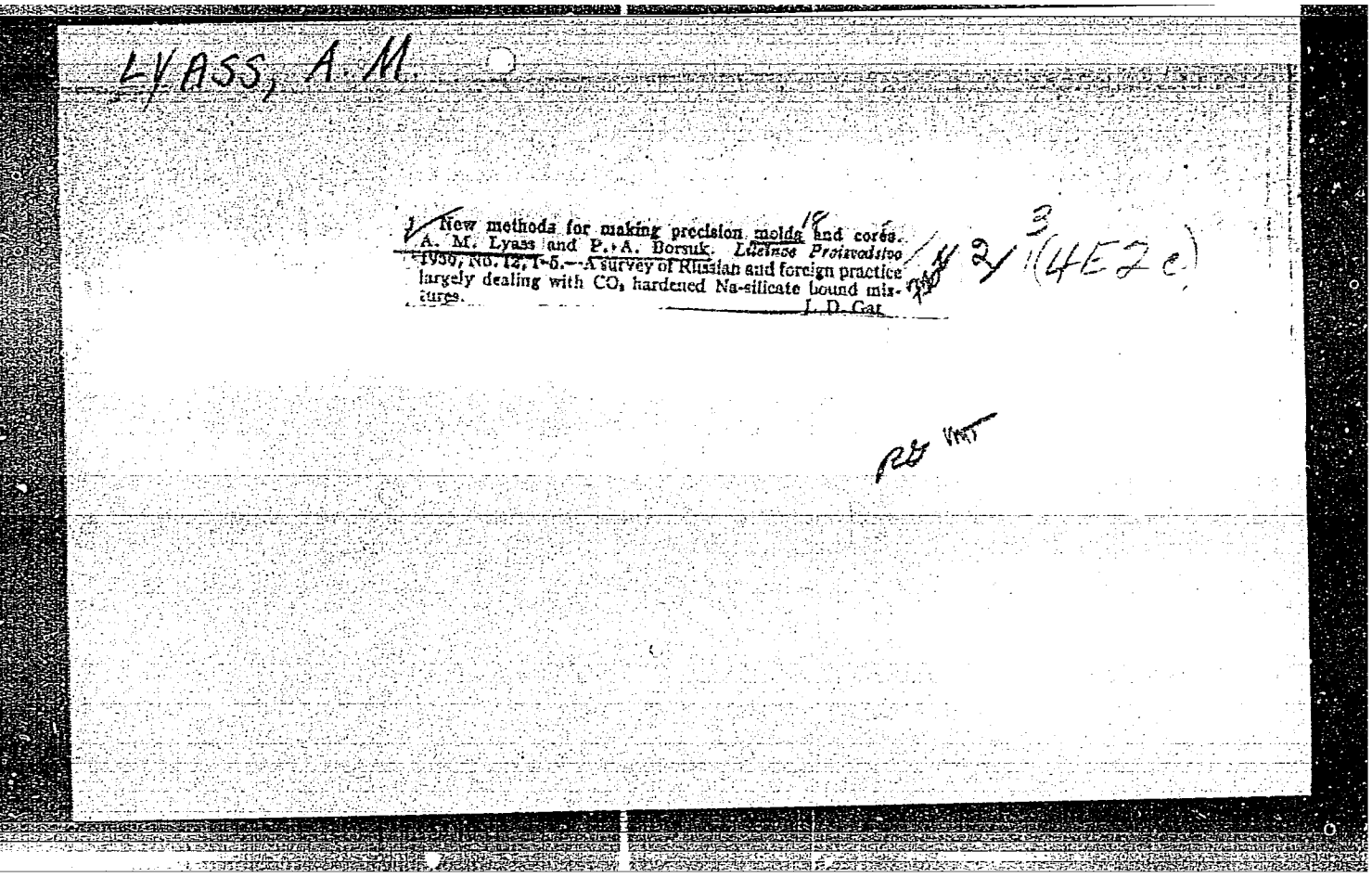
EM nk



LYASS, A. M.

New methods for making precision molds and cores. A. M. Lyass and P. A. Borsuk. *Liteinoe Proizvodstvo* 1956, No. 12, 1-5.—A survey of Russian and foreign practice largely dealing with CO_2 hardened Na-silicate bound mixtures. J. D. Gat

LYASS, A.M.; CHZHOU-YAO-KHO [Chou Yao-huo]

Certain factors having an effect on hot crack formation in steel castings. Lit. proizv. no.3:20-24 Mr '58. (MIRA 11:4)
(Steel castings—Testing)

LYASS, A. M.

128-58-4-8/18

AUTHORS: Lyass, A.M., and Chzhou Yao-Kho, Candidates of Technical Sciences

TITLE: Some Factors Affecting Hot Cracking in Steel Castings (O nekotorykh factorakh, vliyayushchikh na obrazovaniye goryachikh treshchin v stal'nykh otlivkakh)

PERIODICAL: Liteynoye Proizvodstvo, 1958, No. 4, pp 19-23 (USSR)

ABSTRACT: The first part of this article was published in No. 3 of this periodical. This study contains information on an investigation to determine the effect of the yielding capacity of earth molds and cores on the formation of cracks in solidifying metal. Data is given on the composition of investigated earth mixes - which were of different strength and different expansion capacity in high temperature. The special device designed for the experiments (shown in Figure 1) is based on the idea of I.I. Lupyrev [Ref. 4] and comprises an electro-tensometric apparatus (shown in diagram), which is an unbalanced Whitston (Uitston) bridge. It is concluded that shell molds and cores give minimum shrinkage stresses and the minimum possibility of gas cavities in casting. It was stated that in the process of shrinkage, a casting dis-

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places within a mold (together with the surface layer of the mold) in relation to the other layers which are less heated and hence more resistant to displacement. Experiments with aluminium castings in analogous conditions confirmed this, and also the assumption that in free shrinkage, the condition of the mold surface has no noticeable effect on shrinkage value. The friction between the casting and the mold proved measurable. At 1200°C it is 0.06 kg/cm^2, i.e. insignificant.

There are 11 figures, 5 tables, and 10 references, 6 of which are Soviet and 4 English.

AVAILABLE: Library of Congress

Card 2/2 1. Industrial engineering 2. Molding-Cores 3. Castings

15(6), 18(5) SOV/128-59-6-5/25

AUTHOR: Lyass, A.M., Candidate of Technical Sciences

TITLE: Some Properties of Binder Film and Strength of Molding Sand Mixes

PERIODICAL: Liteynoye Proizvodstvo, 1959, Nr 6, pp 8-15 (USSR)

ABSTRACT: This treatment has been made in connection with the question raised by Rebinder, P.A., Academician (Printing Office Znaniye, 1958), about the new scientific fields of physico-chemical mechanics. In the first section of this treatment, the properties of binding materials, known as glues, have been explored. Soviet literature is quoted together with parts from the Yearbook of the Printing Office for Foreign Literature on "Adhesion, Glues, Cements, and Solders" published 1954. After an introduction to the connecting powers on smooth and porous surface, the importance of steam for the durability of binding materials is explained. As a conclusion, the use of waterless core material mixes is suggested. Likewise the influence of heat

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Some Properties of Binder Film and Strength of Molding Sand Mixes

during the drying period of the material and the experiments made in connection with this question are published. Best results have been achieved at a drying temperature of 200 °C over 60 minutes. To carry out the experiments the author designed an apparatus for the observation of the properties of the binding materials during higher temperatures. This apparatus is connected to an electric-automatic potentiometer of the E PP - 09 type operating with an accuracy of ± 1% to 3%. The results of these tests are published. The question of the strength of the binding material, together with the importance of the structure for the durability of the molding material used in the foundry is described. The author assumes the molding materials to be of a spherical shape and makes the corresponding calculations. Conclusions: The experiments have shown that the best adhesion with a minimum of binding materials is found in molding materials with a complete and uniform coating of uniform thickness of

Some Properties of Binder Film and Strength of Molding Sand Mixes

the spherical surface of the material to sustain the binding properties during heating and cooling-off time. There are 11 graphs, 4 diagrams 6 tables and 14 Soviet references

LYASS, A. M. Doc Tech Sci -- "Principles of the theory and [redacted] practice of using quick-hardening mixtures with liquid glass in [redacted] foundry production." Mos, 1960. (State Committee of the Council of Ministers USSR for Automation and Machine Building. Central Sci Res Inst of Information). (KL, 1-61, 190)

GOROZHANKIN, A.N., kand.tekhn.nauk; NOVITSKIY, V.K., kand.tekhn.nauk; KRYANIN, I.R., doktor tekhn.nauk; IODKOVSKIY, S.A., kand.tekhn. nauk; LADYZHENSKIY, B.N., kand.tekhn.nauk; MIL'MAN, B.S., kand.tekhn. nauk; KLOCHNEV, N.I., kand.tekhn.nauk; TSYPIN, I.O., kand.tekhn. nauk; LEVIN, M.M., kand.tekhn.nauk; BALDOV, A.L., inzh.; LYASS, A.M., kand.tekhn.nauk; CHERNYAK, B.Z., kand.tekhn.nauk; ASTAF'YEV, A.A., kand.tekhn.nauk; YERMAKOV, K.A., inzh.; GRIBOYEDOV, Yu.N., kand.tekhn.nauk; MYASOYEDOV, A.N., inzh.; BOGATYREV, Yu.M., kand. tekhn.nauk; UNKSOV, Ye.P., doktor.tekhn.nauk, prof.; SHOFMAN, L.A., kand.tekhn.nauk; PERLIN, P.I., inzh.; MOSHNIN, Ye.N., kand.tekhn. nauk; PROZOROV, L.V., doktor tekhn.nauk; CHERNOVA, Z.I., tekhn. red.

[Some technological problems in the manufacture of heavy machinery] Nekotoryye voprosy tekhnologii tiazhelogo mashinostroeniia. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit. lit-ry. Part 1[Steel smelting and casting, founding, heat treatment; shaping metals by pressure] Vyplavka i razlivka stali, liteinoe proizvodstvo, termicheskaia obrabotka, obrabotka metallov davleniem. 1960. 266 p. (Moscow. TSentral'nyi nauchno-issledovatel'skii institut tekhnologii i mashinostroeniia. [Trudy] no. 98). (MIRA 13:7)
(Steel) (Founding) (Forging)

LYASS, A.M

PHASE I BOOK EXPLOITATION SOV/4666

Voprosy teorii liteynykh protsessov (Problems of the Theory of Founding Processes) Moscow, Mashgiz, 1960. 692 p. 4,500 copies printed.

Sponsoring Agencies: Liteynyye kafedry i otdely Instituta liteynogo proizvodstva AN USSR; Minskogo fiziko-tekhnicheskogo instituta AN BSSR; Moskovskogo avtodorozhnogo instituta; Moskovskogo avtomekhanicheskogo instituta; Moskovskogo vechernego mashinostroitel'nogo instituta; Instituta stali imeni Stalina; Ural'skogo politekhnicheskogo instituta imeni S. M. Kirova; Tsentral'nogo nauchno-issledovatel'skogo instituta tekhnologii i mashinostroyeniya.

Reviewers: A. A. Ryzhikov (Head, Department of Founding, Gor'kiy Politechnic Institute), A. Ye. Krivosheyev (Head, Department of Founding, Dnepropetrovsk Politechnic institute), and I. Přibyl (Head, Department of Founding, Higher School of Mining, Ostrava, Czechoslovakia); Editorial Board: P. I. Vasilevskiy, A. A. Zhukov, N. I. Klochnev, L. S. Konstantinov, and Ya. C. Polyakov;

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Problems of the Theory (Cont.) SOV/4666

Managing Ed. for Literature on Heavy Machine Building: S. Ya. Golovin; Ed. of Publishing House: Yu. L. Markiz; Tech. Ed.: A. F. Uvarova.

PURPOSE: This book is intended for technical personnel of the founding industry.

COVERAGE: This book on founding theory is the result of the joint efforts of metallurgical departments of various schools of higher education and scientific research institutes. Theoretical studies and the scientific research in the field of founding are summarized and discussed. This volume (first of a planned series) is devoted to a number of important theoretical problems of founding dealing with molding, melting, pouring, solidification of casting, the machinery used, and automation. The terminology used in founding is also given. No personalities are mentioned. Each chapter is accompanied by references.

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TABLE OF CONTENTS:

LYASS, A. M., Cand. Tech. Sc.,

"Some problems of the theory and practice of use of molding sand mixtures bound with water glass in USSR foundries"

To be submitted for the 28th International Foundry Congress, Vienna, Austria, 19-24 June 1961.

Head of Department of Materials and Technology, Central Scientific Research Institute of Technology and Machine-Building.

LYASS, A.M.

Some results of investigating the properties of quick-hardening mixtures with sodium silicate. Lit.proizv. no.7:23-30 Jl '61. (MIRA 14:7)

(Sand, Foundry--Testing)

LYASS, A.M.; VALISOVSKIY, I.V.; Prinimali uchastiye: YAKOVLEV, V.O.; BUDANTSEVA, Z.I.; BAGROV, A.A.; VOLKOVA, G.A.

Improving the shakeout of sand mixtures with sodium silicate solutions. Lit. proizv. no.9:33-36 S '61. (MIRA 14:9)
(Coremaking) (Sand, Foundry)

LYASS, A.M.; KUMANIN, I.B.; VALISOVSKIY, I.V.

Review of B.G. Guliaev's book "Founding processes." Lit. proizv. no.1:44-45 Ja '62. (MIRA 16:8)

(Founding)

MIL'MAN, B.S.; LYASS, A.M.; TSYPIN, I.O.; KRAPUKHIN, V.M.; VALISOVSKIY, I.V.; KLOCHNEV, N.I.; AVERBUKH, N.M.; KADNITSOV, V.G.; LIPNITSKIY, A.M.; RUSSIYAN, S.V.; SKOBNIKOV, K.M.

"Iron founding handbook" edited by [doktor tekhn.nauk, prof.] N.G. Girshovich. Book review by B.S.Mil'man and others. Lit. proizv. no.8:46-47 Ag '62. (MIRA 15:11)
(Iron founding--Handbooks, manuals, etc.)
(Girshovich, N.G.)

BERG, P.P., doktor tekhn. nauk; LYASS, A.M., doktor tekhn. nauk, prof., retsenzent; CHERNYAK, O.V., inzh., red.; TIKHANOV, A.Ya., tekhn. red.

[Molding materials] Formovochnye materialy. Moskva, Mashgiz, 1963. 407 p. (MIRA 17:1)

LYASS, A.M.; POBEZHIMOV, P.I.

Structural properties of molding sand mixtures and calculation of the strength of the molds and cores. Lit. proizv. no.4: 16-19 Ap '64. (MIRA 18:7)

LYASS, A.M., doktor tekhn. nauk; SHKLENNIK, Ya.I., kand. tekhn. nauk, retsenzent; ZHESTKOVA, I.N., inzh., red.

[Quick hardening molding mixtures] Bystrotverdeiushchie formovochnye smesi. Moskva, Mashinostroenie, 1965. 331 p. (MIRA 18:2)

LYASS, F.M.

Natural radioactivity effecting men. Vest. rent. i rad. no.5:11-17 S-O '55. (MLRA 9:1)
(RADIATIONS, eff.
natural rays, eff. on men)

LYASS, F.M.

Session of the Section of Medical Radiology of the All-Union Conference of Public Health Workers. Med. rad. 2 no.1:86-89 Ja-F '57 (MLRA 10:5)
(RADIOLOGY, MEDICAL)

LYASS, F.M.

Radon isotope myelography [with summary in English]. Vop.neirokhir. 22 no.3:26-31 My-Je '58 (MIRA 11:8)

1. Nauchno-issledovatel'skiy ordena Trudovogo Krasnogo Znameni institut neyrokhirurgii imeni akad. N.N. Burdenko AMN SSSR.
(SPINAL CORD, radiography
radon myelography (Rus))
(RADON,
radon myelography (Rus))

LYASS, F.M. (Moskva)

Observation system used with a gamma therapy booth. Med. rad. 4 no.4: 87-88 Ap '59. (MIRA 12:7)
(GAMMA RAYS--SAFETY MEASURES)

LYASS, F.M.

Conference on the use of electronics in medicine and biology, Moscow, January 1959. Med.rad. 4 no.6:93 Je '59.
(MIRA 12:8)

(RADIOLOGY, MEDICAL)

VIKHERT, T.M.; KANDEL', E.I.; LYASS, F.M.

Experimental studies on reactive changes in the brain following intracerebral administration of radioactive colloidal gold.
Med.rad. 4 no.9:56-63 S '59. (MIRA 12:11)

1. Iz Nauchno-issledovatel'skogo ordena Trudovogo Krasnogo Znameni instituta neyrokhirurgii imeni akad. N.N.Burdenko AMN SSSR.

(GOLD radioactive)
(BRAIN radiation eff)

BARON, M.A., prof.; LYASS, F.M.; MAYOROVA, N.A. (Moskva)

"Dew" phenomenon on the surface of the brain and its relation to cerebrospinal fluid outflow in canals of the pia mater [with summary in English, p.63]. Vop.neirokhir. 23 no.1:3-11 '59. (MIRA 12:3)

1. Iz Nauchno-issledovatel'skogo ordena Trudovogo Krasnogo Znameni instituta neyrokhirurgii imeni akademika N.N. Burdenko AMN SSSR.
2. Chlen korrespondent AMN SSSR (for Baron)

(BRAIN,
drops of CSF on brain surface after epileptic seizures, relation to CSF outflow in pia mater canals (Rus))
(EPILEPSY, pathol.
same)
(CEREBROSPINAL FLUID,
same)

LYASS, F.M.; SMAGIN, B.I.

Using the scanning method for closer localization of tumors of the spinal cord. Med. rad. 5 no.1:51-52 Ja '60. (MIRA 15:3)

1. Iz rentgeno-radiologicheskogo otdeleniya (zav. - prof. M.B. Kopylov) Instituta neyrokhirurgii imeni akademika N.N. Burdenko AMN SSSR i radiologicheskoy laboratorii (zav. I.K. Tabarovskiy) Vsesoyuznogo nauchno-issledovatel'skogo instituta meditsinskogo instrumentariya i oborudovaniya.
(SPINAL CORD--TUMORS)

LYASS, F.M.

Late complications after the diagnostic use of a long-half-life radioactive substances (thorium). Med.rad. 5 no.3:23-26 '60. (MIRA 13:12)

(THORIUM--TOXICOLOGY) (ANGIOGRAPHY)

GABELOVA, N.A.; ARAKOLOV, O.G.; MARTUSEV, L.T.; LYASS, F.M.

Device for automatic gammagraphy in clinical isotope studies. Med. rad. 5 no.6:61-64 '60. (MIRA 13:12)
(GAMMA RAYS--MEASUREMENT)

LYASS, F.M.

Use of radioisotopes and nuclear radiations in medicine. Atom. energ. 9 no.3:239-241 S '60. (MIRA 13:10)
(Atomic medicine) (Radioisotopes)
(Radioactivity)

VIKHERT, T.M.; KANDEL', Ye.I.; LYASS, F.M.

Histopathological changes in the central nervous system in direct administration into the brain of radioactive gold. Arkh.pat. 22 no.3:48-54 '60. (MIRA 13:12)
(GOLD--ISOTOPES) (BRAIN) (NERVOUS SYSTEM)

ZABLOTSKIY, P.F.; KALANTAROV, K.D.; LYASS, F.N.; EL'KIND, E.Yu.; FALILEYEVA, Ye.P.

Method for gamma-topography (scanning) in clinical diseases of the thyroid gland. Med.rad. no.11:35-40 '61. (MIRA 14:11)

1. Iz Vsesoyuznogo nauchno-issledovatel'skogo instituta meditsinskogo instrumentariya i oborudovaniya, Instituta neyrokhirurgii imeni akad N.N. Burdenko AMN SSSR i Gosudarstvennogo onkologicheskogo instituta imeni P.A. Gertsena.
(THYROID GLAND--DISEASES) (AUTORADIOGRAPHY)

LYASS, F.M.

Isotope myelography in the diagnosis of herniation of the intervertebral disk. Vop.neirokhir. 25 no.3:28-30 My-Je '61. (MIRA 14:5)

1. Nauchno-issledovatel'skiy ordena Trudovogo Krasnogo Znameni institut neyrokhirurgii imeni akad. N.N. Burdenko AMN SSSR.
(INTERVERTEBRAL DISK--DISEASES) (SPINAL CORD--RADIOGRAPHY)
(RADIOISOTOPES)

ZAKUTINSKIY, David Iosifovich; PARFENOV, Yuriy Dionisovich; SELIVANOVA, Lidiya Nikolayevna; LYASS, F.M., red.; PETROVA, N.K., tekhn. red.

[Manual on the toxicology of radioactive isotopes] Spravochnik po toksikologii radioaktivnykh izotopov. Moskva, Medgiz, 1962. 115 p. (MIRA 15:8)

(ISOTOPES—TOXICOLOGY)

PETROV, R.V.; KOROGODIN, V.I.; LYASS, F.M.; NEYFAKH, A.A.; ROMANTSEV, Ye.F.; VEREVKINA, N.M., red.; MORGUNOVA, G.M., tekhn. red.

[Contribution of radiology to the development of the medical and biological disciplines]Vklad radiologii v razvitie mediko-biologicheskikh distsiplin. [By] R.V.Petrov i dr. Minsk, Izd-vo M-va vysshego, srednego spetsial'nogo i professional'nogo obrazovaniia BSSR, 1962. 145 p. (MIRA 15:9)
(RADIOBIOLOGY) (RADIOLOGY, MEDICAL)

LYASS, Fedor Mironovich; LANDAU-TYLKINA, S.P., red.; MIRONOVA, A.M., tekhn. red.

[Isotope myelography]Izotopnaia mielografiia. Moskva, Medgiz, 1962. 127 p. (MIRA 16:1)
(SPINE--RADIOGRAPHY)

KORNYANSKIY, G.P., prof.; LYASS, F.M.

Using isotopes for the diagnosis of brain tumors. Probl.sovr. neirokhir. 4:185-193 '62. (MIRA 16:2)
(BRAIN--TUMORS) (DIAGNOSIS, RADIOSCOPIC)

KOREYSHA, L.A., prof.; ZHAGRIN, A.G.; LYASS, F.M.; SPIRIN, B.G.; GABELOVA, N.A., (Moskva)

Study of hemodynamics in patients with focal diseases of the central nervous system with the aid of labelled sodium. Vop. neirokhir. 27 no.1 Ja-F '63. (MIRA 16:5)

1. Nauchno-issledovatel'skiy institut neyrokhirurgii imeni N.N.Burdenko AMN SSSR.
(NERVOUS SYSTEM--DISEASES) (SODIUM ISOTOPES)
(BLOOD--CIRCULATION)

MOROZOVA, N.G.; LYASS, F.M.

Radiometry of granules of activated yttrium. Med. rad. 7 no.12:59-61 D'62. (MIRA 16:10)

1. Iz Instituta geokhimii i neorganicheskoy khimii imeni V.I. Vernadskogo AN SSSR i Instituta neyrokhirurgii imeni N.N. Burdenko AMN SSSR.

LYASS, F.M.; DESYATNIKOV, V.M.

Modernization of the device for opening the metal container used for the transportation of radioactive isotopes in a "controlled" package. Med. rad. 7 no.11:75-76 N'62. (MIRA 16:9)

1. Nauchno-issledovatel'skiy ordena Trudovogo Krasnogo Znameni institut neyrokhirurgii imeni akademika N.N.Burdenko AMN SSSR.
(RADIATION—SAFETY MEASURES)

FATEYEVA, Margarita Nikolayevna; LYASS, F.M., red.; BEL'CHIKOVA, Yu.S., tekhn. red.

[Radioactive isotopes in the diagnosis of cardiovascular diseases] Radioaktivnye izotopy v diagnostike serdechno-sosudistykh zabolevanii. Moskva, Medgiz, 1963. 90 p. (MIRA 17:1)

LETAVET, A.A., prof., red.; KURLIANDSKAYA, E.B., prof., doktor biol. nauk, red.; LYASS, F.M., red.

[Materials on the toxicology of radioactive substances] Materialy po toksikologii radioaktivnykh veshchestv. Pod red. A.A.Letaveta i E.B.Kurliandskoi. Moskva, Meditsina, No.4. [Thorium-232, Uranium-238] Torii-232, Uran-238. 1964. 116 p. (MIRA 17:8)

1. Deystvitel'nyy chlen AMN SSSR (for Letavet).

TERMAN, Anatoliy Veniaminovich; KROTKOV, F.G., prof., red.; LYASS, F.M., red.

[Problems of radiation safety in the storage and transportation of radioisotopes] Voprosy radiatsionnoi bezopasnosti pri khranenii i perevozke radioaktivnykh izotopov. Moskva, Meditsian, 1964. 135 p. (MIRA 17:12)

1. Deystvitel'nyy chlen AMN SSSR (for Krotkov).

L 27829-65

ACCESSION NR: AP5007133 S/0241/64/009/008/0060/0070

AUTHOR: Baron, M. A. (Head of laboratory of experimental neurohistology, Corresponding member of AMN SSSR, Professor); Lyass, F. M.; Mayorova, N. A.

TITLE: Experimental study of the emission of radioactive colloidal Au^{198}, $Na_2HP^{32}O_4$, $Na^{24}Cl$, and NaI^{131} through the arachnoidal membrane

SOURCE: Meditsinskaya radiologiya, v. 9, no. 8, 1964, 60-70

TOPIC TAGS: nervous system, gold, sodium, isotope, radiology

Abstract: By means of a new method of impressions (applications) taken from the surface of the exposed brain, study of the elimination of radioactive substances introduced into the fluid from the subarachnoidal space through the arachnoidal membrane into the subdural space was made possible. This method makes possible the precise characterization of the amount and location of the eliminates of the compounds tested through the arachnoidal membrane. Study of the elimination of the substances can be carried out dynamically with minute-by-minute sampling of the fluid from the subdural

Card 1/2

space. Experiments conducted by the impression method revealed the agreement of three indexes of the elimination of substances through the arachnoidal membrane: a) the intensity of visually distinguished color of the impressions by a dye introduced along with the isotope into the humor; b) the number of pulses per minute emitted by each impression, determined on a counting device; c) the extent of darkening on radioautographs of the impressions. It was established that colloidal Au^{198} is eliminated through sections of the arachnoidal membrane located above canals, distinguished by high permeability. Passing through these is the efflux and the humor itself. Au^{198} does not permeate through the neighboring sections of the arachnoidal membrane covering the cells. Elimination of crystalloid compounds -- $Na_2HP^{32}O_4$, $Na^{24}Cl$, and NaI^{131} -- is also carried out through the sections over the canals. However, due to the considerable diffusive capacity of these compounds, some of them are eliminated evidently also through the sections of the arachnoidal membrane covering cells. The curve of impression activity characterizing elimination of compounds through the arachnoidal membrane has a similar configuration in experiments with different isotopes. As a rule, elimination of all the isotopes tested began in 1-2 minutes after they were introduced into the cisterna magna, as soon as they had reached the channels of the cerebral

hemispheric surface. In a few minutes more the intensity of isotope elimination reached a maximum. Then a more or less steep drop in elimination occurred, followed by the isotope elimination becoming even and lasting till the end of the observation (2 hours). The fact that not only $Na_2HP^{32}O_4$, $Na^{24}Cl$, and NaI^{131}, but also colloidal Au^{198} passes readily through the arachnoidal membrane confirms the extremely high permeability of the biological membranes for different compounds. Since colloidal Au^{198} does not pass through the hemato-encephalic barrier, it must be assumed that the permeability of the arachnoidal membrane exceeds the permeability of the endothelium of bloodbearing cerebral capillaries. It is logical to assume that like $Na_2HP^{32}O_4$, and $Na^{24}Cl$, other endogenic compounds of the fluid are also eliminated through the arachnoidal membrane. Orig. art. has 6 figs. and 3 graphs.

ASSOCIATION: Laboratoriya eksperimentalnoy neyrogistologii Instituta neyrokhirurgii im. N. N. Burdenko AMN SSSR (Laboratory of Experimental Neurohistology, Institute of Neurosurgery, AMN SSSR)

YELASHOV, Yu.G.; KOZLOVA, A.V.; [illegible]; [illegible]; SINITSIN, R.V.; [illegible], V.K.

8th All-Union Congress of Roentgenologists and Radiologists.
Med. rad. 10 no.2:80-94 F '65. (MIRA 18:6)

LYASS, L. S.
25857

Ob Etiologii Alimentarno - Toksicheskoy Aleykii (Septicheskoy Anginy)
Gigiena i Sanitariya, 1948, No 7, 33-38

SO: LETOPIS NO. 30, 1948

LYASS, L. S.

"Experimental Research on the Mycotherapy of Leukoses." Sub 27 Jun 51, Acad Med Sci USSR.

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55.

LYASS, L.S. (Moskva, V-34, Vsevolozhskiy, per., 5, kv.4)

Results of the treatment of leukosis in mice with a Fusarium preparation. Vop.onk. 1 no.6:79-84 '55. (MLRA 10:1)

1. Iz mikrobiologicheskoy laboratorii Instituta pitaniya AMN SSSR (direktor - chlen-korr. AMN SSSR prof. O.P.Molchanova) i laboratorii eksperimental'noy onkologii AMN SSSR (zav. - chlen-korr. AMN SSSR prof. L.M.Shabad)

(LEUKEMIA, experimental,
eff. of Fusarium sporotrichioides prep. in mice (Rus))

(FUNGI,
Fusarium sporotrichioides prep., eff. on exper. leukemia in mice (Rus))

RUBINSHTEYN, Yu.I.; LYASS, L.S.

Phagocytic capacity of leukocytes in experimental aleukia caused by food poisoning. Vop. pit. 15 no.1:41-43 Ja-F '56 (MLRA 9:4)

1. Iz mikrobiologicheskoy laboratorii (zav.-prof. V.N. Azbelev) otdela pishchevoy gigiyeny Instituta pitaniya AMN SSSR, Moskva.
(LEUKOCYTES, COUNT,
leukopenia, alimentary toxic, phagocytosis in)
(PHAGOCYTOSIS,
in exper. alimentary toxic leukopenia)

IYASS, S. M.

"Dry Cyanization and Chapmanization of Steel" Stanki i Instrument, 10, No. 3, 1939, Engineer, Stankin- om.

Report U-1505, 4 Oct 1951.

LYAST', I. TS.

Coefficient of opacity of a hydrogen-helium atmosphere. I. Ts. Lyast'. *Uchenye Zapiski Gor'kov. Univ.* 27, 46–74 (1954); *Referat. Zhur., Astron., Geodez.* 1955, Abstr. No. 3281.—The coeffs. of absorption for different wave lengths were calcd. for 3 different mixts. of H and He (corresponding to 85 and 15, 75 and 25, and 93 and 7%). From this the coeff. of opacity is calcd. by means of known formulas. The absorption by photoionization of H atoms, by neutral and ionized He, and by free-free transitions distributed over free electrons are accounted for. The influence of all these processes on the coeff. of opacity is evaluated at different temps. and pressures. The coeff. of opacity is approximated by the formula $\kappa = K_{\alpha S} \rho^{\alpha} T^{-S}$, where ρ is d., T – temp. Formulas are given for detg. α and S. The tables are given for the calcn. of the coeffs. of absorption for 3 mixts. at different temps., pressures, and wave lengths. There are also given the values of the coeff. of opacity and of α and S.

Rom. Zalubas

1/ Distr: 4E4J

5-1

Lyass, A. S.

The therapy of leukemia in mice with a preparation made from the Fusarium fungi. L. S. Lyass. *Voprosy Onkologii* 1, No. 6, 79-84(1955).—In normal mice, strain A, the Rubinshtein prepn. (*Nauch. Trudy Inst. Pidaniya Akad. Med. Nauk S.S.S.R.* 1948, 29-57; *Gigiena i Sanit.* 1948, 33-8 (1948)). (I) produced a stable leucopenia, and in leukemic mice it inhibited the development of leukemic cell elements. In 14 of 15 mice with implanted leukemia the leucocyte count was reduced to normal and in some cases to below the normal count. The reduction in the number of leucocytes began to be manifest 24-48 hrs. after the injection of I. By varying the dose of I a normal leucocyte count was maintained successfully in the peripheral blood of mice with spontaneous leukemia for 1-2 months. The immature leucocyte forms disappeared and the differential count presented a normal picture. In the case of mice with a transplanted leukemia, I improved their general appearance, but failed to effect a prolongation of their life span. Autopsies of the treated mice in the majority of the cases showed no enlargement of the lymphatic nodes, or of the goiter, the liver, or of the spleen. Histologic studies showed cellular changes characteristic to the initial stages of leucopenia. In 11 of 31 mice with transplanted leukemia no palpable tumors appeared at the sites of injection; in 12 mice the tumors were considerably smaller than in the controls, and in 8 mice there was no reversion of the pathologic development. Yet, even in these mice the leucocyte count was below that of the controls. A study of the brain of mice with spontaneous leukemia treated with I showed the normalization of the cellular composition of the brain. I also sharply reduced the mitotic activity of the leukemic cells in the peripheral blood from 15 to 5%.

B. S. Levine

LYAST, I. Ts.

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1589
AUTHOR LJAST,I.C.
TITLE The Mechanism of Dielectric Losses in Crystals and Polar Molecules which are Due to Relaxation.
PERIODICAL Žurn.techn.fis,fasc.10,2293-2301 (1956)
Issued: 11 / 1956

Here the following mechanism is recommended: The transitions of the polar molecules into the neighboring not occupied parts are in general accompanied by a revolution of polar moleoules. In the case of the existence of an electric field, the number of dipoles directioned towards the pole therefore increases as against inversely directioned dipoles. This polarization has relaxation character because the transitions of the molecules from one into another stable state are connected with the heat motion of these molecules. At first the kinetic equation for the motion of polar molecules in an ion crystal in the case of an existing exterior electric field is derived. On this occasion the interaction of polar molecules is disregarded. The electric field is assumed as being weak and harmonic. While terms of second and higher order are neglected, an expression for the number of transitions per second is given. With the help of this expression the modification velocity of the molecules which are located at certain points is computed. The system of equations hereby obtained can easily be linearized. Furthermore, expressions for the active and reactive component of the amperage due to the transitions of polar molecules and for the tangent of the loss angle are found. To every

Zurn. techn. fis, fasc. 10, 2293-2301 (1956) CARD 2 / 2 PA - 1589

relaxation time there corresponds a certain maximum of the loss angle. In order to determine the polarization of polycrystals it is necessary to average over all directions of the exterior electric field. The expression found heretofore is given and simplified. Further, an expression for the tangent of the loss angle is given for polycrystals. The dielectric losses in crystal hydrates of the gypsum type can, for the time being, not be quantitatively computed accurately, and therefore only an approximated evaluation of the maxima of the loss angles is carried out. For the loss angle maximum at high frequencies an expression is found. Under the influence of the strong electric fields in the molecules of the crystal water a dipole moment is found which may exceed the water molecules' own dipole moment. For the total dipole moment of water the value $2,5.10^{-18}$ CGSE is found in rough approximation. At a temperature of $T=293^{\circ}K$ $(tg\delta)_{max}=9.10^{-3}$ is found by computation. The corresponding experimental value is $3,3.10^{-3}$. Agreement is satisfactory because here only an approximated evaluation is carried out.

INSTITUTION:

AUTHOR: Lyast, I. Ts. 48-22-3-12/30

TITLE: The Mechanism of Dielectric Relaxation Losses in Crystal Hydrates (Mekhanizm relaksatsionnykh dielektricheskikh poter' v kristallogidratakh)

PERIODICAL: Izvestiya Akademii Nauk SSSR,Seriya Fizicheskaya, 1958 Vol. 22, Nr 3, pp. 276-278 (USSR)

ABSTRACT: Dielectric losses in a substance containing polar molecules cannot be caused only by the simple rotation of these molecules. Dielectric relaxation losses must also take place with the translation motion of the polar molecules. Diffusion and polarization are characterized by the samp period of relaxation. The water molecules are loosely fastened in crystal hydrates. The number of diffusing molecules is therefore relatively high and the polarization caused by the displacement of the water-molecules may play an important role. In a general case, when molecules of different fastening energy are found in the crystal hydrate, a system of kinetic equations must be solved (Ref 1). In the present work the author confines himself to the case with equally fastened molecules. The following formula is obtained for a poly-crystalline sample according

to the averaging with the solution of the corresponding kinetic equation:

$$tg\delta = \frac{\varepsilon+2}{\varepsilon} \cdot \frac{\mu^2}{9kT} \cdot \frac{n(N-n)}{N} \cdot \frac{\omega\tau}{1+(\omega\tau)^2}$$

As results from the works by Vodop'yanov and his collaborators (Ref 2 to 5), dielectric losses in crystal hydrates have an interesting pecularity consisting in the presence of a so-called concentration maximum of the losses on the $tg\delta$-diagram of the dependence of the crystallization-water content. A maximum of concentration also occurs when beside the place from where the water molecule has removed itself, any relaxation processes takes place. The mechanism investigated makes it possible to determine the relaxation time τ according to the diffusion coefficient D. The fastening energy of the water molecule can be determined according to the dehydration velocity of the crystal. The energy-value of the slightly fastened molecules:

$$U = 1{,}1 \cdot 10^{-12} \text{ erg.}$$

is obtained in this way for gypsum $CaSO_4 \cdot 2H_2O$. When the fastening energy U is known, the number of crystallization water molecules can be determined by means of the somewhat modified formula by Lengmyur (Ref 6) in the case of a static equilibrium

$$n = \frac{N}{1 + \frac{N}{m} e^{-\frac{U}{kT}}}$$

m - number of the steam molecules in the unit volume. A rough estimate showed that the value of $(tg\delta)_{max}$ calculated for gypsum corresponds - according to size - with its experimentally found values. In crystals, the lattices of which are formed of polar molecules (ice, solid salt-solution and others), also losses caused by the displacement of the molecules must take place if these polar molecules are able to diffuse due to existing defects. Since the number of defects is usually very low, the value of $tg\delta$ must also be correspondingly low. The investigated mechanism can therefore in no case be applied for the clarification of the dielectric losses taking place in these substances. The author thanks G. I. Skanavi and M. P. Tonkonogov for the discussion of the results.
There are 7 references. all of which are Soviet.

ASSOCIATION: Karagandinskiy gornyy institut (Karaganda Mining Institute)

The Mechanism of Dielectric Relaxation Losses in Crystal Hydrates 48-22-3-12/30

AVAILABLE: Library of Congress

1. Crystal hydrates--Dielectric properties

Card 4/4

57-28-4-25/39

AUTHOR: Lyast, I. Ts.

TITLE: ~~Dielectric~~ Losses in Crystalline Hydrates and Their Connection With Diffusion Phenomena (Dielektricheskiye poteri v kristallogidratakh i ikh svyaz' s diffuzionnymi yavleniyami)

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1958, Vol. 28, Nr 4, pp.827-831 (USSR)

ABSTRACT: In the preceding paper (Ref 1) the problem whether the mechanism suggested there gives the possibility of determining the relaxation-time τ remained unsolved. This problem is treated here. Formula (1) from Ref 1 does not permit to calculate τ directly, as the parameters occurring there are very difficult to determine. For the determination of τ the fact is utilized that the polarization is caused by a progressive motion of the molecule and τ denotes that time needed for the transition of the molecule into the neighboring position. The transitions within the lattice cause the diffusion of the molecules, the diffusion being characterized by the same relaxation time τ. Thereby it becomes possible to determine τ according to the diffusion-

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Dielectric Losses in Crystalline Hydrates and Their Connection With Diffusion Phenomena

-velocity of the water-molecules within the crystal-lattice. For the cubic lattice the relation between the diffusion-factor D and τ' applies:

$$D = \frac{d^2}{6\tau'}$$

where d denotes the distance between the positions in which the diffusing molecules may occur. The calculations are here performed on the basis of the mechanism suggested in Ref 1. The equation (6) is derived. From this equation τ can be determined according to the hydration velocity of the crystal. On rigorous considerations (6) only holds for cubic crystals, but as the calculations here possess an approximative nature it is also applied to non-cubic lattices. It is shown that the relaxation-time determined according to the diffusion-velocity of the water-molecules is, according to the order of magnitude, in agreement with the quantity of τ' from the electric measurements. The comparison with the experimental data is performed with the example of gypsum $CaSO_4 \cdot 2H_2O$, where the data of

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Ref 3 are used. The results were discussed with G. I.

57-28-4-25/39

Dielectric Losses in Crystalline Hydrates and Their Connection With Diffusion Phenomena

Skanavi, A. N. Gubkin and M. P. Tonkonogov. There are 5 references, 5 of which are Soviet.

ASSOCIATION: Karagandinskiy gornyy institut (Karaganda Institute for Mining)

SUBMITTED: May 27, 1957

Card 3/3

LYAST, I.TS.

Properties of crystals with high permittivity. Zhur. tekh. fiz. 28 no.11:2546-2547 N '58. (MIRA 12:1)
(Barium titanate)

Lazar, I. Ts., Cand Phys-Math Sci -- (diss) "Concerning the theory of relaxation polarization of ionic crystals," Ufa, 1960, 14 pp, (Physics Institute imeni P. N. Lebedev, Academy of Sciences USSR)

(KL, 38-60, 106)

81645

S/181/60/002/06/34/050
B006/B056

24.7800

AUTHOR: Lyast, I. Ts.

TITLE: Polarization of Ion Crystals Containing Relaxing Defects

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 6, pp. 1256 - 1263

TEXT: Recently, a number of papers have been published which dealt with the investigation of relaxation polarization caused by crystal lattice defects. Among them, an investigation by Breekenridge (Ref. 1) is thoroughly described in the introduction, who discovered relaxation-induced maxima of tan δ (loss angle) on alkali-halide crystals, which he brought into connection with defects in the ion lattice structure. In general, it is assumed that this polarization may be explained by relaxation motions of dipoles, ions, or the like in the lattice, which are caused by lattice defects. The relaxing elements are described by the author as "relaxing defects"; they are assumed to be introduced in the form of freely rotating dipoles. Basing upon the theory by Kirkwood-Fröhlich, the author carried out a theoretical investigation of the polarization of an ion lattice containing relaxing defects (the afore-

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Polarization of Ion Crystals Containing Relaxing Defects

mentioned rotating dipoles), the interaction between these dipoles and the ion lattice being taken into account. As the relaxation time of the dipoles is great compared to the period of natural ion oscillations, the ions may be assumed to be in an adiabatic (inertialess) state. The dipoles are assumed to be unpolarized points; though they may change their orientation within a unit cell, they are looked upon as non-ordered over the entire crystal volume. Changes in the lattice structure around the defects are not taken into account. It is found not to be possible to draw definite conclusions from the results obtained as to whether relaxation polarization in crystals with an excessively high dielectric constant is connected with the relaxing defects, but this appears to be the most natural conclusion. The author finally thanks Professor G. I. Skanavi and A. N. Gubkin, Candidate of Physical and Mathematical Sciences, for discussing this paper and for critical remarks. There are 12 references: 7 Soviet, 3 British, and 2 American.

ASSOCIATION: Karagandinskiy gornyy institut (Karaganda Mining Institute)

SUBMITTED: November 10, 1957

Card 2/2

81647
S/181/60/002/06/36/050
B006/B056

24.7800

AUTHOR: Lyast, I. Ts.

TITLE: The Interaction of Ions in a Perovskite Lattice

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 6, pp. 1269 - 1275

TEXT: The present paper is an immediate continuation of an earlier one (Ref. 1), in which the author derived general formulas for the polarization of dielectrics containing "relaxing defects". By "relaxing defects" one understands relaxing elements (ions, dipoles, etc.) occurring in a crystal as the result of some kinds of defect. In crystals with rutile or perovskite structures, the Ti ions play the part of relaxing elements. These ions, which perform relaxation motions, may be looked upon as rigid dipoles. For the purpose of calculating polarization, the dipoles are imagined to be surrounded by spheres within which the medium is considered to be continuous; dipoles and ions are assumed to be punctiform. In the present paper, the polarization caused by the presence of these relaxing elements is investigated by using the formula for the dielectric constant of such a crystal, which is derived in Ref. 1. The

Card 1/2

investigation is based upon the scheme of the perovskite lattice shown in Fig. 1. Explicit formulas are obtained for the coefficients A_1, A_2, and A_3 occurring in the formula for the dielectric constant, and these coefficients are numerically computed. In the following, the interaction of titanium ions in the $BaTiO_3$ lattice is investigated, and the interaction energy is determined. A numerical value is obtained for the dipole moment. The last part of the paper deals with the investigation of the potential energy of Ti ions in the $BaTiO_3$ lattice. If the interaction energy of the Ti and O ions is known, investigations of the shape of the potential well, in which the seignette-active Ti ion moves, may be carried out. The potential course obtained is shown in Fig. 2. Its shape agrees with that obtained in Ref. 8. Finally, the results are briefly discussed. There are 2 figures and 9 references: 7 Soviet, 1 American, and 1 British.

SUBMITTED: July 7, 1958

S/081/62/000/003/077/090
B171/B101

AUTHORS: Lyast, I. Ts., Vshivtsev, A. D.

TITLE: Automation of the determination of the total sulfur content in petroleum products

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 3, 1962, 495, abstract 3M242 (Sb. "Khimiya seraorgan. soyedineniy, soderzhashchikhsya v neftyakh i nefteproduktakh. v. 4," M., Gostoptekhizdat, 1961, 92-99)

TEXT: An instrument (A. I.) has been developed for automatic determination of S content in petroleum products. Its operation is based on the use of radioactive radiation. According to laboratory tests, the steadiness of the instrument indications is satisfactory and the error does not exceed ± 0.05%. The use of the A. I. for a continuous check of the S content in petroleum products flow facilitates the control of the technological process. A. I. can also be used in laboratory for S-content determination. [Abstracter's note: Complete translation.]

Card 1/1

33335
S/181/62/004/001/001/052
B102/B138

24.7100 (also 1153, 1160)

AUTHOR: Lyast, I. Ts.

TITLE: Octupole interaction of polarized atoms in crystals

PERIODICAL: Fizika tverdogo tela, v. 4, no. 1, 1962, 3 - 7

TEXT: In polarization calculations of crystals only the dipole moments of the particles are usually taken into account. Here the influence of induced octupole moments on the inner field of the system is investigated. An atomic (or ionic) lattice is considered in quantum statistical theory, when the variation in electron density is proportional to a perturbing potential $V(\vec{r})$: $\delta\varrho = A(r)V(\vec{r})$; $A(r) = \frac{3}{5\varkappa_k}\lambda[\varrho(r)]^{1/3}$; $\varkappa_k = 2.87e^2a_0$, a_0 - Bohr radius, e - electron charge, λ - variational parameter. The interaction of two polarized atoms (distance d) results in mutual perturbation of both electron shells under the influence of the dipole moment or moments of higher order. The potential of the dipole field components of the atom I at point $\vec{r}_{II}$ of the second atom, $V_{II} = \vec{p}_I(\vec{d}+\vec{r}_{II})/|\vec{d}+\vec{r}_{II}|^2$

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Octupole interaction of...

is expanded with respect to the parameter $\eta = r/d$,

$$V_{II} = \frac{p_1}{d^3}\left([1 - 2\eta_{II}\mu'_{II} + 3\eta_{II}^2 P_2(\mu'_{II}) - 4\eta_{II}^3 P_3(\mu'_{II})]\mu + \right.$$

$$\left. + [\eta_{II} - 3\eta_{II}^2\mu'_{II} + 3\eta_{II}^3 P_2(\mu'_{II})]\beta\beta'_{II}\cos\varphi'_{II}\right), \quad (4)$$

$$\mu' = \frac{\mathbf{rd}}{rd} = \cos\theta', \quad \mu = \frac{\mathbf{pd}}{pd} = \cos\theta, \quad \beta' = \sin\theta', \quad \beta = \sin\theta, \quad (5)$$

$$P_2(\mu) = \frac{1}{2}\mu^2 - \frac{1}{2}; \quad P_3(\mu) = \frac{5}{2}\mu^3 - \frac{3}{2}\mu; \quad P_3'(\mu) = \frac{5}{2}\mu^2 - \frac{1}{2}. \quad (5')$$

where the components of the octupole moment are determined by the terms $\sim\eta^3$,

$$p_{\alpha\beta\gamma}^{(II)} = -e\iiint_{(II)} A(r_{II})\, V_{II}^{(3)}\alpha\beta\gamma\, dv_{II}, \quad (7)$$

$$V_{II}^{(3)} = \frac{p_1}{d^5}\left[-4P_3(\mu'_{II})\mu + 3P_3'(\mu'_{II})\beta'_{II}\beta\cos\varphi'_{II}\right] r_{II}^3. \quad (8).$$

The vectors p are the dipole moments, $p = \alpha E$, E is the field induced by

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Octupole interaction of...

p_I in the center of atom II, $\alpha = \frac{4\pi e}{3}\int_0^R r^4 A(r)dr$, the polarizability of the atom. The non-vanishing tensor components are

$$p_{zzz}^{II} = 8B\cos\theta,\ p_{xxz} = -4B\sin\theta,\ p_{xxx} = p_{xyy} = -4B\cos\theta,$$
$$p_{xxz} = 3B\sin\theta,\ p_{xyy} = B\sin\theta;\ B = \frac{3}{35}\frac{\alpha^* p_I}{d^5}. \quad (9)$$

$$\alpha^* = \frac{4\pi}{3}e\int_0^R r^5 A(r)\,dr. \quad (10)$$

All 10 components are given in explicit form as functions of angles θ and φ. The results are applied to the calculation of the polarization of an atomic (ionic) lattice. It is shown for a cubic lattice that the octupole field

$$E_{ext.}^{(1)} = 84\frac{\alpha_{II}^* p_I}{d^{10}} = 84\frac{\alpha_I^* \alpha_{II}^*}{d^{10}}E_I, \quad (15)$$

leads to a change of the Clausius-Mosotti formula

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Octupole interaction of...

$$\frac{\varepsilon-1}{\varepsilon+2}=\frac{4\pi}{3}N\left\{\frac{\alpha_1}{1-84\frac{\alpha_1\alpha_{11}}{d^{10}}}+\frac{\alpha_{11}}{1-84\frac{\alpha_1\alpha_{11}}{d^{10}}}\right\}, \quad (16).$$

The octupole correction to the dielectric constant is very small since the "octupole polarizability" $\alpha^*\approx 0.08$ ($\alpha^* = \alpha R^4$; for $\alpha = 3\cdot10^{-24}$ cm^3, $R = 1.5\cdot10^{-8}$ cm). There are 2 figures and 3 Soviet references.

ASSOCIATION: Bashkirskiy filial AN SSSR (Bashkir Branch AS USSR)

SUBMITTED: April 12, 1961

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L 43931-65 EWT(m)/EWA(h)

ACCESSION NR: AT5008636 S/2933/64/007/000/0227/0232

AUTHORS: Lyust, I. Ts.; Vshivtsev, A. D.

TITLE: Radiometric determination of sulfur in liquids and gases

SOURCE: AN SSSR. Bashkirskiy filial. Khimiya seraorganicheskikh soyedineniy, soderzhashchikhsya v neftyakh i nefteproduktakh, v. 7, 1964, 227-232

TOPIC TAGS: radiometry, sulfur, petroleum, ionization detector/RPSN 5 ionization detector, RPSG 1 ionization detector

ABSTRACT: The authors describe a technique of radiometric determination by means of an RPSN-5 ionization detector. It is based on absorption of soft gamma radiation (Fe^{55} in an argon atmosphere). The detector is a differential ionization chamber, operating on the principle of comparing two beams of radiation, one passing through the test material. The intensity difference between the two beams is determined by means of a compensating wedge, which may be rotated to bring the intensity difference to zero. The angle of rotation of the wedge is proportional to the absorbing capacity of the test material. This rotation angle can be compared with the value for some minimal density, and an expression may then be

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ACCESSION NR: AT5008636

obtained for the sulfur content. The characteristics of the RPSN-5 device are: 1) limiting content of sulfur that may be measured, 0.1-2.0%; 2) measurement error, ± 0.01% in the first range, ± 0.03% in the second; 3) limits of density computation, 0.70-0.85 g/cm^3; 4) time for a single analysis, 3-4 minutes; 5) activity of source, 1-5 microcuries. The device may be readily used for determining sulfur content in petroleum products, liquid hydrocarbons, and gases. Orig. art. has: 3 figures and 11 formulas.

ASSOCIATION: Institut organicheskoy khimii BashFAN SSSR (Institute of Organic Chemistry, Bashkirian Branch, AN SSSR)

SUBMITTED: 00 ENCL: 00 SUB CODE: FP, OC

NO REF SOV: 012 OTHER: 005

Card 2/2

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Poligr.proizv. no.3:18-21 My-Je '54. (MLRA 7:8)
(Printing plants--Ventilation)

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Abs Jour : Ref Zhur - Biol., No 11, 1958, No 50142

Author : Lyatifov Ch.
Inst : -
Title : Radical Treatment of Traumatic Rib Injuries in Buffalos

Orig Pub : Sotz. s. kh. Azerbaydzana, 1957, No 10, 49-50

Abstract : No abstract

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(Pericardium)
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